

1           198. (New) The water-based drilling fluid of claim 196 wherein said low shear  
2 rate viscosity comprises about 100,000 cP or more upon exposure to 0.3 rpm.

1           199. (New) The water-based drilling fluid of claim 196 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase, said quantity  
3 being sufficient to provide effective lubrication properties to said drilling fluid.

1           200. (New) The water-based drilling fluid of claim 197 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase, said quantity  
3 being sufficient to provide effective lubrication properties to said drilling fluid.

1           201. (New) The water-based drilling fluid of claim 196 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates, alkyl ether sulfates, alkyl ether  
3 sulfates, alkyl sulfonates, ethoxylated esters, ethoxylated glycoside esters, alcohol ethers,  
4 and phosphated esters comprising about 8 to about 18 carbon atoms, alkali metal salts  
5 thereof, and combinations thereof.

1           202. (New) The water-based drilling fluid of claim 196 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates and alkyl ether sulfates.

1           203. (New) The water-based drilling fluid of claim 196 wherein said surfactant  
2 comprises an alkyl ether sulfate.

1           204. (New) The water-based drilling fluid of claim 197 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates, alkyl ether sulfates, alkyl  
3 sulfonates, ethoxylated esters, ethoxylated glycoside esters, alcohol ethers, and  
4 phosphated esters comprising about 8 to about 18 carbon atoms, alkali metal salts thereof,  
5 and combinations thereof.

1           205.   (New) The water-based drilling fluid of claim 197 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates and alkyl ether sulfates.

1           206.   (New) The water-based drilling fluid of claim 197 wherein said surfactant  
2 comprises an alkyl ether sulfate.

1           207.   (New) The water-based drilling fluid of claim 200 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates, alkyl ether sulfates, alkyl  
3 sulfonates, ethoxylated esters, ethoxylated glycoside esters, alcohol ethers, and  
4 phosphated esters comprising about 8 to about 18 carbon atoms, alkali metal salts thereof,  
5 and combinations thereof.

1           208.   (New) The water-based drilling fluid of claim 200 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates and alkyl ether sulfates.

1           209.   (New) The water-based drilling fluid of claim 200 wherein said surfactant  
2 comprises an alkyl ether sulfate.

1           210.   (New) The water-based drilling fluid of claim 196 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           211.   (New) The water-based drilling fluid of claim 197 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           212.   (New) The water-based drilling fluid of claim 200 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           213.   (New) The water-based drilling fluid of claim 196 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           214. (New) The water-based drilling fluid of claim 197 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           215. (New) The water-based drilling fluid of claim 200 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           216. (New) The water-based drilling fluid of claim 212 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           217. (New) The water-based drilling fluid of claim 196 wherein said effective  
2 fluid loss control properties is a fluid loss of about 1 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           218. (New) The water based drilling fluid of claim 197 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1           219. (New) The water based drilling fluid of claim 218 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           220. (New) The water-based drilling fluid of claims 212 wherein said  
2 concentration is from about 2 to about 20 vol.%.

1           221. (New) The water-based drilling fluid of claim 196 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of modified  
3 polysaccharides having a weight average molecular weight of about 500,000 to about  
4 2,500,000.

1           222. (New) The water-based drilling fluid of claim 196 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of modified  
3 polysaccharides having a weight average molecular weight of about from about 700,000  
4 to about 1,200,000.

1           223. (New) The water-based drilling fluid of claim 196 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           224. (New) The water-based drilling fluid of claim 219 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           225. (New) The water-based drilling fluid of claim 196 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 200,000 to  
4 about 2,500,000.

1           226. (New) The water-based drilling fluid of claim 196 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 600,000 to  
4 about 1,000,000.

1           227. (New) The water-based drilling fluid of claim 221 wherein said  
2 synthetically modified polysaccharides comprise a functional group selected from the  
3 group consisting of a carboxymethyl group, a propylene glycol group, and an  
4 epichlorohydrin group.

1           228. (New) The water-based drilling fluid of claim 225 wherein said  
2 synthetically modified starches comprise a functional group selected from the group

3 consisting of a carboxymethyl group, a propylene glycol group, and an epichlorohydrin  
4 group.

1 229. (New) The water-based drilling fluid of claim 224 has a density of about  
2 7.9 lb/gal. or more.

1 230. (New) A water-based drilling fluid:  
2 an aqueous base;  
3 a quantity of water soluble polymer;  
4 an amount of surfactant in association with said water soluble polymer;  
5 wherein said quantity, said amount, and said association provide said water- based  
6 drilling fluid effective rheology and fluid loss control properties  
7 comprising low shear rate viscosity; and  
8 a concentration of non-toxic water emulsifiable material as an internal phase, said  
9 surfactant being effective to emulsify said water emulsifiable material and  
10 to produce emulsion droplets having an average diameter of about 30  
11 microns or less.

1 231. (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates, alkyl ether sulfates, alkyl  
3 sulfonates, ethoxylated esters, ethoxylated glycoside esters, alcohol ethers, and  
4 phosphated esters comprising about 8 to about 18 carbon atoms, alkali metal salts thereof,  
5 and combinations thereof.

1 232. (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates and alkyl ether sulfates.

1           233.   (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 comprises an alkyl ether sulfate.

1           234.   (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 is sodium tridecyl ether sulfate.

1           235.   (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 is effective to emulsify said water emulsifiable material and to produce emulsion droplets  
3 having an average diameter of about 20 microns or less.

1           236.   (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 is effective to emulsify said water emulsifiable material and to produce emulsion droplets  
3 having an average diameter of about 15 microns or less.

1           237.   (New) The water-based drilling fluid of claim 230 wherein said surfactant  
2 is effective to emulsify said water emulsifiable material and to produce emulsion droplets  
3 having an average diameter of about 5 microns or less.

1           238.   (New) The water-based drilling fluid of claim 230 wherein said low shear  
2 rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           239.   (New) The water-based drilling fluid of claim 230 wherein said low shear  
4 rate viscosity is about 100,000 cP or more upon exposure to 0.3 rpm.

1           240.   (New) The water-based drilling fluid of claim 232 wherein said low shear  
2 rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           241.   (New) The water-based drilling fluid of claim 230 wherein said  
2 concentration is from about 2 to about 20 vol.%.

1           242.   (New) The water-based drilling fluid of claim 238 wherein said  
2 concentration is from about 2 to about 20 vol.%.

1           243.   (New) The water-based drilling fluid of claim 238 wherein said  
2 concentration is about 5 vol.% .

1           244.   (New) The water-based drilling fluid of claim 230 wherein said non-toxic  
2 water emulsifiable material is a water insoluble material selected from the group  
3 consisting of olefins, paraffins, water insoluble glycols, water insoluble esters, water  
4 insoluble Fischer-Tropsch reaction products, and combinations thereof.

1           245.   (New) The water-based drilling fluid of claim 238 wherein said water  
2 emulsifiable material is a water insoluble material selected from the group consisting of  
3 olefins, paraffins, water insoluble glycols, and combinations thereof.

1           246.   (New) The water-based drilling fluid of claim 240 wherein said water  
2 emulsifiable material is a water insoluble material selected from the group consisting of  
3 olefins, paraffins, water insoluble glycols, and combinations thereof.

1           247.   (New) The water-based drilling fluid of claim 230 wherein said fluid  
2 consists essentially of additives other a solid bridging agent.

1           248.   (New) The water-based drilling fluid of claim 232 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           249.   (New) The water-based drilling fluid of claim 238 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           250.   (New) The water-based drilling fluid of claim 240 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           251. (New) The water-based drilling fluid of claim 230 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           252. (New) The water-based drilling fluid of claim 247 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           253. (New) The water-based drilling fluid of claim 248 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           254. (New) The water-based drilling fluid of claim 249 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           255. (New) The water-based drilling fluid of claim 230 wherein said effective  
2 fluid loss control properties is a fluid loss of about 1 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           256. (New) The water-based drilling fluid of claim 248 wherein said effective  
2 fluid loss control properties is a fluid loss of about 1 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           257. (New) The water-based drilling fluid of claim 230 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,



4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 258. (New) The water-based drilling fluid of claim 238 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 259. (New) The water-based drilling fluid of claim 240 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 260. (New) The water-based drilling fluid of claim 247 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 261. (New) The water based drilling fluid of claim 230 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1 262. (New) The water based drilling fluid of claim 261 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           263. (New) The water based drilling fluid of claim 247 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1           264. (New) The water based drilling fluid of claim 263 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           265. (New) The water-based drilling fluid of claim 257 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of modified  
3 polysaccharides having a weight average molecular weight of about 500,000 to about  
4 2,500,000.

1           266. (New) The water-based drilling fluid of any of claims 257 wherein said  
2 water soluble polymer comprises polymers selected from the group consisting of  
3 modified polysaccharides having a weight average molecular weight of about from about  
4 700,000 to about 1,200,000.

1           267. (New) The water-based drilling fluid of claim 257 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           268. (New) The water-based drilling fluid of claim 257 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 200,000 to  
4 about 2,500,000.

1           269. (New) The water-based drilling fluid of claim 257 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 600,000 to  
4 about 1,000,000.

1           270. (New) The water-based drilling fluid of claim 268 wherein said  
2 synthetically modified starches comprise a functional group selected from the group  
3 consisting of a carboxymethyl group, a propylene glycol group, and an epichlorohydrin  
4 group.

1           271. (New) The water-based drilling fluid of claim 265 wherein said  
2 synthetically modified polysaccharides comprise a functional group selected from the  
3 group consisting of a carboxymethyl group, a propylene glycol group, and an  
4 epichlorohydrin group.

1           272. (New) A water-based drilling fluid comprising:  
2 an aqueous base;  
3 at least about 2 lb./bbl. water soluble polymer; and,  
4 at least about 0.2 lb./bbl. of a surfactant in association with said water soluble  
5 polymer;  
6 wherein said water soluble polymer, said surfactant, and said association provide  
7 said water- based drilling fluid with effective rheology and fluid loss  
8 control properties comprising low shear rate viscosity.

1           273. (New) The water-based drilling fluid of claim 272 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates, alkyl ether sulfates, alkyl  
3 sulfonates, ethoxylated esters, ethoxylated glycoside esters, alcohol ethers, and  
4 phosphated esters comprising about 8 to about 18 carbon atoms, alkali metal salts thereof,  
5 and combinations thereof.

1           274. (New) The water-based drilling fluid of claim 272 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates and alkyl ether sulfates.

1           275. (New) The water-based drilling fluid of claim 272 wherein said surfactant  
2 comprises an alkyl ether sulfate.

1           276. (New) The water-based drilling fluid of claim 272 wherein said surfactant  
2 is sodium tridecyl ether sulfate.

1           277. (New) The water-based drilling fluid of claim 272 wherein said low shear  
2 rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           278. (New) The water-based drilling fluid of claim 272 wherein said low shear  
2 rate viscosity is about 100,000 cP or more upon exposure to 0.3 rpm.

1           279. (New) The water-based drilling fluid of claim 274 wherein said low shear  
2 rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           280. (New) The water-based drilling fluid of claim 275 wherein said low shear  
2 rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           281. (New) The water-based drilling fluid of claim 276 wherein said low shear  
2 rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           282. (New) The water-based drilling fluid of claim 272 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           283. (New) The water-based drilling fluid of claim 274 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           284. (New) The water-based drilling fluid of claim 276 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           285.   (New) The water-based drilling fluid of claim 277 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           286.   (New) The water-based drilling fluid of claim 279 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           287.   (New) The water-based drilling fluid of claim 280 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           288.   (New) The water-based drilling fluid of claim 281 further comprising a  
2 concentration of non-toxic water emulsifiable material as an internal phase.

1           289.   (New) The water-based drilling fluid of claim 282 wherein said  
2 concentration is from about 2 to about 20 vol.%.

1           290.   (New) The water-based drilling fluid of claim 288 wherein said  
2 concentration is from about 2 to about 20 vol.%.

1           291.   (New) The water-based drilling fluid of claim 276 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           292.   (New) The water-based drilling fluid of claim 277 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           293.   (New) The water-based drilling fluid of claim 279 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           294.   (New) The water-based drilling fluid of claim 281 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           295.   (New) The water-based drilling fluid of claim 272 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           296.   (New) The water-based drilling fluid of claim 277 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           297.   (New) The water-based drilling fluid of claim 291 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           298.   (New) The water-based drilling fluid of claim 292 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           299.   (New) The water-based drilling fluid of claim 293 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           300.   (New) The water-based drilling fluid of claim 294 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           301.   (New) The water-based drilling fluid of claim 272 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,

4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 302. (New) The water-based drilling fluid of claim 291 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 303. (New) The water-based drilling fluid of claim 292 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 304. (New) The water-based drilling fluid of claim 293 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 305. (New) The water based drilling fluid of claim 272 wherein said surfactant  
2 produces a reduced of said water based drilling fluid.

1 306. (New) The water based drilling fluid of claim 305 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           307. (New) The water based drilling fluid of claim 291 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1           308. (New) The water based drilling fluid of claim 307 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           309. (New) The water based drilling fluid of claim 292 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1           310. (New) The water based drilling fluid of claim 309 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           311. (New) The water-based drilling fluid of claim 272 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of modified  
3 polysaccharides having a weight average molecular weight of about 500,000 to about  
4 2,500,000.

1           312. (New) The water-based drilling fluid of any of claims 272 wherein said  
2 water soluble polymer comprises polymers selected from the group consisting of  
3 modified polysaccharides having a weight average molecular weight of about from about  
4 700,000 to about 1,200,000.

1           313. (New) The water-based drilling fluid of claim 272 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           314. (New) The water-based drilling fluid of claim 276 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           315. (New) The water-based drilling fluid of claim 291 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.



1           316. (New) The water-based drilling fluid of claim 292 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           317. (New) The water-based drilling fluid of claim 293 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           318. (New) The water-based drilling fluid of claim 294 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           319. (New) The water-based drilling fluid of claim 272 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 200,000 to  
4 about 2,500,000.

1           320. (New) The water-based drilling fluid of claim 272 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 600,000 to  
4 about 1,000,000.

1           321. (New) The water-based drilling fluid of claim 319 wherein said  
2 synthetically modified starches comprise a functional group selected from the group  
3 consisting of a carboxymethyl group, a propylene glycol group, and an epichlorohydrin  
4 group.

1           322. (New) The water-based drilling fluid of claim 311 wherein said  
2 synthetically modified polysaccharides comprise a functional group selected from the  
3 group consisting of a carboxymethyl group, a propylene glycol group, and an  
4 epichlorohydrin group.

1            323.    (New) The water-based drilling fluid of claim 272 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1            324.    (New) The water-based drilling fluid of claim 276 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1            325.    (New) The water-based drilling fluid of claim 291 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1            326.    (New) The water-based drilling fluid of claim 292 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1            327.    (New) The water-based drilling fluid of claim 293 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1            328.    (New) The water-based drilling fluid of claim 294 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1            329.    (New) A water-based drilling fluid comprising:  
2            an aqueous base;  
3            about 7.5 lb./bbl. water soluble polymer; and,  
4            about 2 lb./bbl. of a surfactant in association with said water soluble polymer;  
5            wherein said water soluble polymer, said surfactant, and said association provide  
6            said water- based drilling fluid with effective rheology and fluid loss.  
7            control properties comprising low shear viscosity.

1            330.    (New) The water-based drilling fluid of claim 329 wherein said surfactant  
2 is selected from the group consisting of alkyl sulfates, alkyl ether sulfates, alkyl  
3 sulfonates, ethoxylated esters, ethoxylated glycoside esters, alcohol ethers, and

4   phosphated esters comprising about 8 to about 18 carbon atoms, alkali metal salts thereof,  
5   and combinations thereof.

1           331.   (New) The water-based drilling fluid of claim 329 wherein said surfactant  
2   is selected from the group consisting of alkyl sulfates and alkyl ether sulfates.

1           332.   (New) The water-based drilling fluid of claim 329 wherein said surfactant  
2   comprises an alkyl ether sulfate.

1           333.   (New) The water-based drilling fluid of claim 329 wherein said surfactant  
2   is sodium tridecyl ether sulfate.

1           334.   (New) The water-based drilling fluid of claim 329 wherein said low shear  
2   rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           335.   (New) The water-based drilling fluid of claim 329 wherein said low shear  
2   rate viscosity is about 100,000 cP or more upon exposure to 0.3 rpm.

1           336.   (New) The water-based drilling fluid of claim 331 wherein said low shear  
2   rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           337.   (New) The water-based drilling fluid of claim 332 wherein said low shear  
2   rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           338.   (New) The water-based drilling fluid of claim 333 wherein said low shear  
2   rate viscosity is about 70,000 cP or more upon exposure to 0.3 rpm.

1           339.   (New) The water-based drilling fluid of claim 329 further comprising a  
2   concentration of non-toxic water emulsifiable material as an internal phase.

1           340.   (New) The water-based drilling fluid of claim 339 wherein said  
2   concentration is from about 2 to about 20 vol.%.

1           341.   (New) The water-based drilling fluid of claim 329 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           342.   (New) The water-based drilling fluid of claim 331 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           343.   (New) The water-based drilling fluid of claim 334 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           344.   (New) The water-based drilling fluid of claim 336 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           345.   (New) The water-based drilling fluid of claim 337 wherein said fluid  
2 consists essentially of additives other than a solid bridging agent.

1           346.   (New) The water-based drilling fluid of claim 329 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           347.   (New) The water-based drilling fluid of claim 341 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           348.   (New) The water-based drilling fluid of claim 342 wherein said effective  
2 fluid loss control properties is a fluid loss of about 5 ml./30 min. or less using the  
3 standard dynamic filtration fluid loss test.

1           349.   (New) The water-based drilling fluid of claim 329 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,

4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 350. (New) The water-based drilling fluid of claim 341 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 351. (New) The water-based drilling fluid of claim 344 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 352. (New) The water based drilling fluid of claim 329 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1 353. (New) The water based drilling fluid of claim 352 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1 354. (New) The water based drilling fluid of claim 341 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1 355. (New) The water based drilling fluid of claim 354 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1 356. (New) The water based drilling fluid of claim 346 wherein said surfactant  
2 produces a reduced surface tension of said water based drilling fluid.

1           357. (New) The water based drilling fluid of claim 356 wherein said reduced  
2 surface tension of said water based drilling fluid is from about 25 to about 40 nN/m.

1           358. (New) The water-based drilling fluid of claim 351 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of modified  
3 polysaccharides having a weight average molecular weight of about 500,000 to about  
4 2,500,000.

1           359. (New) The water-based drilling fluid of any of claims 351 wherein said  
2 water soluble polymer comprises polymers selected from the group consisting of  
3 modified polysaccharides having a weight average molecular weight of about from about  
4 700,000 to about 1,200,000.

1           360. (New) The water-based drilling fluid of claim 351 wherein said water-  
2 soluble polymer comprises xanthan polysaccharides.

1           361. (New) The water-based drilling fluid of claim 351 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 200,000 to  
4 about 2,500,000.

1           362. (New) The water-based drilling fluid of claim 351 wherein said water  
2 soluble polymer comprises polymers selected from the group consisting of synthetically  
3 modified starches having a weight average molecular weight of from about 600,000 to  
4 about 1,000,000.

1           363. (New) The water-based drilling fluid of claim 361 wherein said  
2 synthetically modified starches comprise a functional group selected from the group

3 consisting of a carboxymethyl group, a propylene glycol group, and an epichlorohydrin  
4 group.

1 364. (New) The water-based drilling fluid of claim 358 wherein said  
2 synthetically modified polysaccharides comprise a functional group selected from the  
3 group consisting of a carboxymethyl group, a propylene glycol group, and an  
4 epichlorohydrin group.

1 365. (New) The water-based drilling fluid of claim 329 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1 366. (New) The water-based drilling fluid of claim 331 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1 367. (New) The water-based drilling fluid of claim 341 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1 368. (New) The water-based drilling fluid of claim 344 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1 369. (New) The water-based drilling fluid of claim 345 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1 370. (New) A water-based drilling fluid comprising:  
2 about 7.5 lb./bbl. water soluble polymer;  
3 about 2 lb./bbl. of a surfactant in association with said water soluble polymer; and  
4 a concentration of a non-toxic water emulsifiable material as an internal phase;

5 wherein said water soluble polymer, said surfactant, and said association provide  
6 said water- based drilling fluid with effective rheology and fluid loss  
7 control properties comprising low shear viscosity

1 371. (New) The water-based drilling fluid of claim 370 wherein said surfactant  
2 is sodium tridecyl ether sulfate.

1 372. (New) The water-based drilling fluid of claim 370 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 373. (New) The water-based drilling fluid of claim 371 wherein said water  
2 soluble polymer is selected from the group consisting of water soluble starches and  
3 modified versions thereof, water-soluble polysaccharides and modified versions thereof,  
4 and water-soluble celluloses and modified versions thereof, and water soluble  
5 polyacrylamides and copolymers thereof, and combinations thereof.

1 374. (New) The water-based drilling fluid of claim 371 wherein said water  
2 soluble polymer is a combination comprising from about 40 to about 60 wt.% of a  
3 xanthan polysaccharide and about from about 40 to about 60 wt.% synthetically modified  
4 starch comprising one or more functional groups selected from the group consisting of  
5 carboxymethyl, propylene glycol, and epichlorohydrin functional groups.

1 375. (New) The water-based drilling fluid of claim 371 wherein said water  
2 soluble polymer is a combination comprising about 50 wt.% xanthan polysaccharide and



3 about 50 wt.% synthetically modified starch comprising one or more functional groups  
4 selected from the group consisting of carboxymethyl, propylene glycol, and  
5 epichlorohydrin functional groups.

1 376. (New) A water-based drilling fluid comprising:  
2 an aqueous base;  
3 about 7.5 lb./bbl. of water soluble polymer comprising a combination of about 50  
4 wt.% xanthan polysaccharide and about 50 wt.% synthetically modified  
5 starch comprising one or more functional groups selected from the group  
6 consisting of a carboxymethyl group, a propylene glycol group, and an  
7 epichlorohydrin functional group;  
8 about 2 lb./bbl. sodium tridecyl ether sulfate; .  
9 wherein said water soluble polymer, said surfactant, and said association provide  
10 said water-based drilling fluid with effective rheology and fluid loss  
11 control properties comprising low shear viscosity; and  
12 wherein said water-based fluid consists essentially of additives other than solid  
13 bridging agents.

1 377. (New) The water based drilling fluid of claim 376 further comprising a  
2 concentration of a non-toxic water emulsifiable material as an internal phase.

1 378. (New) The water-based drilling fluid of claim 377 wherein said non-toxic  
2 water emulsifiable material is a water insoluble material selected from the group  
3 consisting of olefins, paraffins, water insoluble glycols, water insoluble esters, water  
4 insoluble Fischer-Tropsch reaction products, and combinations thereof.

1           379.   (New) The water-based drilling fluid of claim 376 further comprising an  
2 alkali metal salt of a compound selected from the group consisting of a thiosulfate and a  
3 thiosulfonate.

1           380.   (New) The water-based drilling fluid of claim 377 further comprising an  
2 alkali metal salt of a compound selected from the group consisting of a thiosulfate and a  
3 thiosulfonate.

1           381.   (New) The water-based drilling fluid of claim 376 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1           382.   (New) The water-based drilling fluid of claim 377 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1           383.   (New) The water-based drilling fluid of claim 379 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.

1           384.   (New) The water-based drilling fluid of claim 380 wherein said water  
2 soluble polymer comprises 50/50 wt.% XAN-PLEX<sup>TM</sup> D and BIOLOSE<sup>TM</sup>.